we were fearful of injury to the internal maxillary artery, but were spared so serious an accident.

The case passed on rapidly to a cure, with the exception of the anchylosed condition of the lower jaw, owing, we supposed, to inflammation produced in the fossa in which the articulation rests. Passive motion was gradually overcoming this difficulty, when the man was discharged July 23, 1865.

CASE XII. G. S., private Co. —, 50th Heavy Artillery, German, was admitted to "Mower" Hospital, September 12, 1864, suffering from gunshot wound of the left side of the head received at the *second battle of Bull Run, August* 29, 1862, *more than two years before.* Bullet entered just anterior to the external meatus of left ear, and still remains in the head undiscovered. Ear discharges offensive pus.

November 6. Received an election furlough from which he returned in December. Health not much impaired.

January 5, 1865. Face and head inflamed, and health beginning to give way under a febrile condition.

Patient was put under chloroform and the ball found, by means of a Nélaton probe, imbedded probably in the petrous portion of the temporal bone. We were enabled to get hold of it with different kinds of forceps, but were unable to extract it, and desisted at that time for two reasons. One was that the parts were so excessively sensitive that it seemed nearly impossible to produce anæsthesia after having worked at the ball for a short time; and another reason was we concluded that it would be much more safe to remove the bullet by means of small cutting forceps, which we had not at hand, than to continue forcible means in this locality.

Temporary relief was afforded by our efforts by the opening of a deep seated abscess, and after a few days of illness the patient was again about. He had lost his hearing on this side at the time he was wounded. Necrosis must eventuate, but all our endeavours to induce the patient to submit to any further efforts to remove the missile were unavailing.

We saw the case up to July, 1865, when the large amount of offensive discharge continued, and the man wore an anxious, haggard look, as if he feared serious results. His health was also undermined.

This case was under the care of Dr. Fell, who, with Dr. Agnew, assisted in the attempt to extract the ball.

NO. 627 NORTH 13TH STREET, PHILADELPHIA.

ART. VII.—*Physiological Experiments connected with the Silent, Talking, and Passive Movement Pulse, and the Silent Respiration—made by J. H. Salisbury, M. D., and Dr. M. W. House, on Members of the Biological Society, whose Names appear in the Tables; with Explanations and Remarks.* By J. H. SALISBURY, M. D., Professor of Histol., Physiol., and Pathol. in Charity Hospital Med. Coll., Cleveland, Ohio.

THESE observations and experiments have been made with great care, every precaution having been taken to render them reliable and of value. Apparatus was constructed so as to place the body without any effort on the part of the subject experimented upon, either in a horizontal or perpendicular position, or at any desired angle. The parties experimented upon were all in perfect health, and ranged in age from twenty-four to forty-five, except one—Dr. Henderson—who is fifty-one.

The experiments were performed from two to five hours after eating, and mostly during the evening from 8 to 11 P. M.

Mean of a Series of Experiments on the Silent and Talking Pulse, and on the Silent Respiration.—In these experiments, after the body was placed in any given position, a sufficient time was allowed for the pulse to settle, before the observations in that position were made. This time ranged from two to three minutes. This was found to be abundantly long, as the body was moved by apparatus without the least effort to itself.

		SILENT PULSE.		TALKING PULSE.		SILENT RESPIRATION.	
		Number of observations.	Mean pulse.	Number of observations.	Mean pulse.	Number of observations.	Mean respiration.
On the back	Hands raised above the head	8	$67\frac{13}{16}$	2	$75\frac{3}{4}$	2	$15\frac{1}{2}$
Body horizontal,	Hands by side	13	$67\frac{1}{2}$	8	72	7	$15\frac{5}{7}$
	Hands by the side, and head raised 4 in.	6	$71\frac{7}{12}$	1	75	2	13
On the back, legs horizontal, and body inclined at an angle of,	$22\frac{1}{2}$°	6	$73\frac{1}{3}$			1	14
	45	14	$75\frac{5}{14}$	10	$77\frac{11}{20}$	8	$16\frac{5}{16}$
	$67\frac{1}{2}$	6	$74\frac{2}{3}$			2	$17\frac{1}{3}$
	90	10	$75\frac{1}{2}$	6	$78\frac{1}{2}$	3	$16\frac{1}{3}$
On the back, body horizontal, and legs inclined at an angle of,	$22\frac{1}{2}$	6	$67\frac{1}{2}$			2	$17\frac{1}{2}$
	45	13	$66\frac{3}{13}$	8	$71\frac{3}{16}$	6	$16\frac{1}{2}$
	$67\frac{1}{2}$	6	$69\frac{1}{3}$			2	$17\frac{1}{2}$
	90	9	$70\frac{8}{9}$	4	$76\frac{3}{4}$	3	$16\frac{1}{3}$
On the back, body and legs inclined at an angle with the hips of,	$22\frac{1}{2}$	6	$69\frac{1}{4}$			2	$15\frac{3}{4}$
	45	14	$66\frac{1}{4}$	10	$71\frac{3}{4}$	7	$16\frac{4}{7}$
On back, body inclined (head highest) at an angle of,	$22\frac{1}{2}$	6	$71\frac{1}{4}$			2	$17\frac{1}{4}$
	45	11	$82\frac{7}{11}$	7	$82\frac{9}{14}$	5	$16\frac{1}{5}$
	$67\frac{1}{2}$	6	$85\frac{1}{4}$				
Body erect,	90	14	$83\frac{1}{4}$	10	$81\frac{1}{4}$	5	18
On back, body inclined (feet highest) at an angle of,	$22\frac{1}{2}$	6	$63\frac{1}{12}$				
	45	8	$61\frac{9}{16}$				
Body horizontal,	On right side	6	$66\frac{2}{3}$				
	On left side	6	$67\frac{7}{12}$				
	On abdomen	6	$69\frac{5}{12}$			1	20

These experiments were made on the following medical gentlemen: W. W. Firestone, M. D.; D. B. Elson, M. D.; R. N. McConnell, M. D.;

Chas. H. Merrick, M. D. ; R. A. Henderson, M. D. ; Geo. H. Pease, M. D. ; I. J. Livers, M. D. ; J. P. Waste, M. D. ; John S. Hershiser, M. D. ; and Dr. H. A. Root.

The mean silent pulse of 8 observations, position horizontal, on back, with arms extended above the head, is $67\frac{13}{16}$. The mean talking pulse of 2 observations, same position, $75\frac{3}{4}$. The difference between the silent and talking pulse, $7\frac{94}{100}$.

The mean silent pulse of 13 observations, position horizontal, on back, hands by side, $67\frac{1}{2}$. The mean talking pulse of 8 observations, same position, 72. Difference between the silent and talking pulse, $4\frac{1}{2}$.

The mean silent pulse of 6 observations, position horizontal, on back, head raised, 4 inches on a support, $71\frac{7}{12}$. The mean talking pulse, 1 observation, same position, 75. Difference, $3\frac{42}{100}$.

The mean silent pulse of 6 observations, position on back, head highest, body inclined at an angle of $22\frac{1}{2}$°, $71\frac{1}{4}$. Talking pulse, same position not noted. The mean silent pulse of 11 observations, position on back, head highest, body inclined at an angle of 45°, $82\frac{7}{11}$. Talking pulse, mean of 7 observations, same position, $82\frac{9}{14}$. Difference between silent and talking pulse $\frac{2}{100}$, the silent pulse having a fraction the highest.

In gradually elevating the body from a horizontal position (on back) to the erect, an interesting feature will here be noticed. In the horizontal position, the talking pulse is $3\frac{42}{100}$ the highest. At 45° the talking pulse and silent pulse are very nearly equal. In the erect position, the talking pulse is two the lowest.

The difference between the silent pulse, position horizontal, on back, hands by side, mean of 10 observations, and body at an angle of 45°; mean of 11 observations is $15\frac{14}{100}$; and between the horizontal and perpendicular positions (the latter a mean of 14 observations), $15\frac{75}{100}$.

The difference between the talking pulse (mean of 8 observations) position horizontal, and that of an angle of 45° (mean of 7 observations), is $10\frac{64}{100}$. The difference between the talking pulse, position horizontal, and that of the erect position (mean of 10 observations), $9\frac{25}{100}$. Hence it will be seen that the difference between the silent pulse in different positions is greater than that of the talking pulse in the same positions.

The mean silent pulse of 14 observations, position on back, legs horizontal and body raised at an angle of 45°, is $75\frac{5}{14}$. The mean talking pulse (10 observations), same position, is $77\frac{11}{20}$. Difference $2\frac{19}{100}$. The mean silent pulse (10 observations), position on back, legs horizontal, and body raised at an angle of 90°, is $75\frac{1}{2}$. The mean talking pulse (6 observations), same position, is $78\frac{1}{2}$. Difference 3.

The difference between the silent pulse, mean of 13 observations, positions horizontal, hands by side, and the silent pulse, mean of 4 observations, position on back, legs horizontal, and body raised at an angle of 45°, is $7\frac{86}{100}$. The difference between the talking pulse, same positions, the former a mean of 8 observations, and the latter 10, is $5\frac{11}{20}$. The difference between the silent pulse, mean of 13 observations, position horizontal, hands by side, and the silent pulse, mean of 10 observations, position on back, legs horizontal, and body raised at an angle of 90°, is 8.

The difference between the talking pulse of same positions, the form a mean of 8 observations and the latter of 6, is $6\frac{1}{2}$.

The mean silent pulse (13 observations) position on back, body horizontal, and legs elevated at an angle of 45°, is $66\frac{3}{13}$. The mean talking pulse, of 8 observations, same position, is $72\frac{3}{16}$. Difference, $5\frac{96}{100}$.

The mean silent pulse (9 observations), position on back, body horizontal, and legs raised at an angle of 90°, is $70\frac{8}{9}$. The mean talking pulse (4 observations), same position, is $76\frac{3}{4}$. Difference, $5\frac{86}{100}$.

The difference between the silent pulse (mean of 13 observations), position horizontal, hands by side, and the silent pulse, mean of 13 observations), position on back, body horizontal, and legs raised at an angle of 45°, is $1\frac{27}{100}$, the pulse of the latter position being the lowest. The difference between the talking pulse of same positions (each a mean of 8 observations), is $\frac{19}{100}$, the latter being slightly the highest.

The difference between the silent pulse (mean of 13 observations), position horizontal, hands by side, and the silent pulse (mean of 9 observations), position on back, body horizontal, and legs raised at an angle of 90°, is $3\frac{37}{100}$. The difference between the talking pulse, same positions, mean of 8 and 4 observations, is $4\frac{75}{100}$.

The mean silent pulse (14 observations), position on back, and legs and body raised at an angle with the hips of 45°, is $66\frac{1}{4}$. The talking pulse (mean of 10 observations) of same position, is $71\frac{3}{4}$. Difference, $5\frac{1}{2}$. The silent pulse of this position is $\frac{25}{100}$ less than that of the horizontal position, showing that this position must be slightly more one of muscular rest than the horizontal.

The mean silent pulse (8 observations), position on back, body inclined (feet highest) at an angle of 45°, is $61\frac{9}{16}$. The mean talking pulse, same position; mean of 10 observations is $81\frac{1}{4}$. Difference, $19\frac{69}{100}$. This is a remarkable difference, showing the influence upon the talking pulse of an increased flow of blood to the brain, which would be the tendency in this position. When, however, the brain is quiescent, the pulse is lowered by placing the body in this position. The pulse is about the same when lying upon the back as it is when lying upon the left side. It is slightly lowered by lying upon the right side and elevated by lying upon the abdomen.

The respiration is also increased in a marked degree, by lying in this last mentioned position. The silent respiration is not influenced in any considerable degree by changing the positions of the body. It will, however, be desirable to extend these observations before drawing inferences in this direction. The coming winter this series of experiments will be greatly extended by the Society.

From the foregoing experiments, it appears, as a general rule, that the positions requiring the least muscular effort have the lowest pulse; and that, in such positions, the difference between the silent and talking pulse is greatest. There is an exception to this, where the body is placed on an inclined plane, the head highest. Positions requiring the greater muscular effort have the higher pulse; and the difference between the silent and talking pulse is the least. There is hence a greater difference between the silent pulse of positions requiring muscular effort, and those requiring little or none, than between the talking pulse of the same positions; showing quite conclusively that the muscular and nerve influences over the pulse, are to a great extent independent of each other.

When the body is inclined upon a plane surface (head highest) and there being no muscular effort, there is but little difference between the silent and talking pulse; but when the body is inclined with the feet highest, the difference is very great; the silent pulse being very low, while the talking pulse is that of the horizontal position with hands by side.

Mean Results of Three Series of Observations, made on Drs. Elson, Patterson, and Sommers, showing the Influence of Passive Motion upon the Pulse.

	Mean of the three series of observations.
Standing, hands by side	82
In the horizontal position (hands by side), on back . . .	$66\frac{2}{3}$
Horizontal position, with passive motion of right leg, flexing and extending it on hip, from horizontal to an angle of 45°, every four pulsations	69
Same position, right and left limbs flexed and extended every four pulsations	$77\frac{1}{3}$
Same position, right and left limbs flexed and extended alternately every four pulsations	$79\frac{1}{3}$
Same position; flexing and extending right leg; thigh perpendicular and leg horizontal, bending knee at right angles every four pulsations	74
Same position; both legs flexed and extended; thighs perpendicular and legs horizontal, every four pulsations .	89
Same position; flexing and extending legs; thighs alternately perpendicular and horizontal, and legs horizontal, every four pulsations	$88\frac{1}{6}$
Same position; flexing alternately arms from horizontal to perpendicular, and then flexing arms at elbows at right angles, every four pulsations	$71\frac{2}{3}$
Same position; raising arms alternately from horizontal to perpendicular every four pulsations	$71\frac{1}{3}$
Same position; flexing alternately forearm from horizontal to perpendicular, every four pulsations	69
Same position; flexing arms across chest, alternately every four pulsations	$67\frac{1}{3}$

These observations are the beginning of a series which will be continued during the coming winter. The few here presented are sufficient to indicate the influence of passive motion upon the pulse. It will be seen that the mean horizontal pulse is $66\frac{2}{3}$. That the mean horizontal pulse, with passive movement of the right leg, upon the hip, from horizontal to an angle of 45° every four pulsations is 69. That the mean pulse of same position with right and left legs flexed and extended at same time, every four pulsations is $77\frac{1}{3}$. That the mean in same position, the right and left legs flexed and extended alternately every four pulsations, is $79\frac{1}{3}$. That the mean pulse from flexing and extending the right leg, thigh perpendicular and leg horizontal (bending knee at right angles), every four pulsations, is 74. This is five more pulsations per minute than when flexing the leg on the hip (without bending the knee) at an angle of 45°. The mean pulse, where the legs are flexed and extended alternately, thighs perpendicular, and legs horizontal, every four pulsations, is $88\frac{1}{6}$. The mean pulse from flexing alternately arms from horizontal to perpendicular, and then flexing arms at elbows at right angles every four pulsations, is $71\frac{2}{3}$. The mean pulse form raising the arms alternately from horizontal to perpendicular every four pulsations without bending the elbows is $71\frac{1}{3}$. The mean pulse from flexing alternately the forearm from horizontal to perpendicular every four pulsations is 69. The mean pulse from flexing alternately the arms across breast every four pulsations is $67\frac{1}{3}$. It will be seen from the foregoing that the pulse is increased in proportion to the amount of passive muscular movement.

ART. VIII.—*Experiments Connected with the Effects of the Sulphate of Quinia and Cinchonia upon the Healthy Pulse.* By D. B. ELSON, M. D.

THE experiments the first day in the first series, show the pulse without quinia. Those of the second day show the effect upon the pulse of two grains of quinia taken every half hour. The third, the effect upon the pulse of five grains of quinia taken every half hour. The fourth, the same. The fifth, the effect upon the pulse of ten grains of quinia taken every half hour. The sixth, the effect of twenty grains of quinia taken every half hour.

In the second series, the experiments of the first day show the effect upon the pulse of five grains of the sulphate of cinchonia, taken every half hour. Those of the second show the effect upon the pulse of ten grains of cinchonia, taken every half hour. Those of the third, the effect of twenty grains of the sulphate of cinchonia, taken every half hour.

The detailed results are omitted, the means only being given.